

Soviet Intentions and Capabilities for Interdicting Sea Lines of Communication in a War With NATO

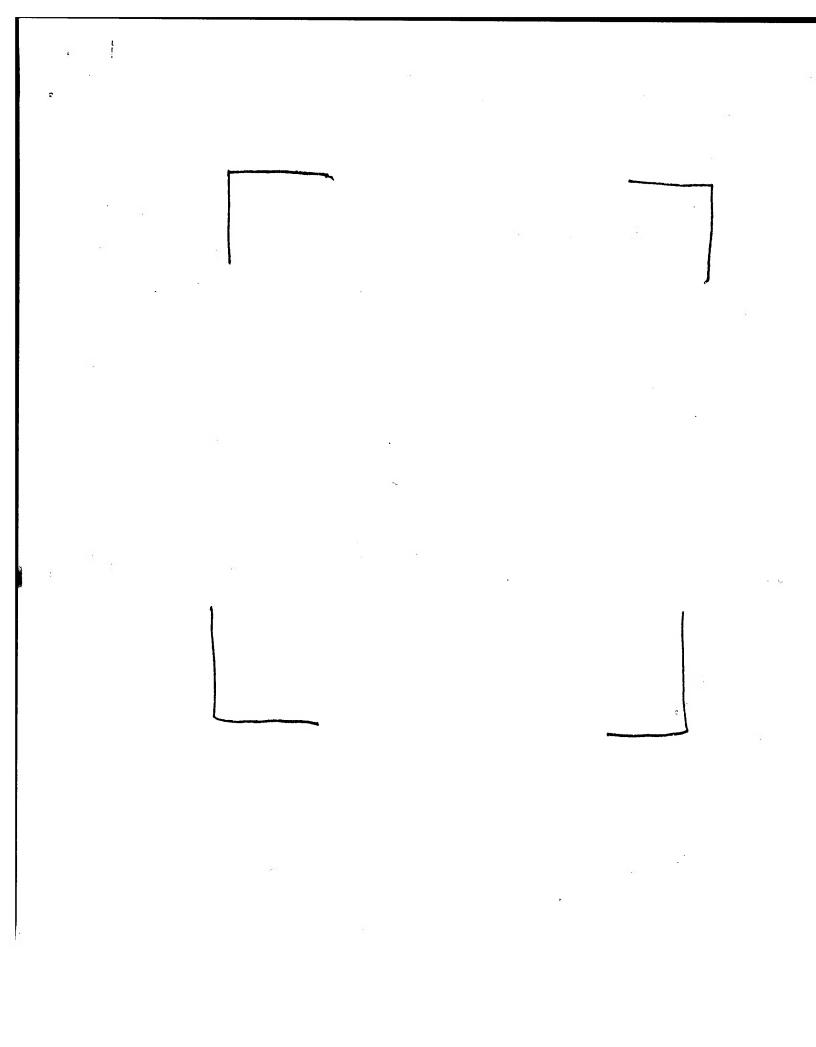
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SOVIET INTENTIONS AND CAPABILITIES FOR INTERDICTING SEA LINES OF COMMUNICATION IN A WAR WITH NATO

Information available as of 1 September 1981 was used in the preparation of this Memorandum.

PREFACE

This Interagency Intelligence Memorandum was commissioned in 1979 by the Director of Central Intelligence in response to a request by the Under Secretary of the Navy for an in-depth study of Soviet planning and capabilities for interdicting NATO sea lines of communication in wartime. The Secretary of Defense and the Under Secretary of the Navy provided guidance for the terms of reference. The Memorandum was produced under the auspices of the National Intelligence Officer for General Purpose Forces. It was drafted

National Foreign Assessment Center, CIA, with contributions by the Office of Naval Intelligence, the Defense Intelligence Agency, and the National Security Agency.

The study is special in the sense that a number of judgments about Soviet interdiction capabilities are based on analyses that involved the simulation and modeling of combat between opposing forces. These analyses are not an attempt to predict which side would win a future "Battle of the Atlantic," or by how much. Their purpose is only to highlight the key variables to which Soviet interdiction capabilities are sensitive and to identify trends for those capabilities under various assumptions. Interactive combat simulations clarify combat stresses on Soviet forces, and thereby allow a more meaningful assessment of the capabilities of those forces. These analyses were performed by the Center for Naval Analyses and provided by the Office of the Chief of Naval Operations.

This Memorandum was coordinated with the intelligence components of the Departments of State and Defense and with the National Foreign Assessment Center, CIA.

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SCOPE NOTE

This Interagency Intelligence Memorandum addresses the issue of Soviet interdiction of Western sea lines of communication (SLOC) in a general NATO-Warsaw Pact war centered in Europe. SLOC interdiction is denying or hindering by any means an enemy's use of the sea for transporting military or economic cargoes. There are two parts to the issue:

- Soviet intentions. How does SLOC interdiction fit into Soviet planning for a war with NATO?
- Soviet capabilities. To what extent could the Soviets carry out an interdiction campaign in such a war and what would be the key factors affecting their anti-SLOC potential?

The Soviets note that sea lines can be interdicted by a variety of forces used in a variety of ways, including attacks on ships at sea, the mining of heavily traveled waters, and the disruption or destruction of ports of embarkation and destination. They clearly believe that attacking an enemy's ports and harbors with nuclear weapons is the most efficient means of SLOC interdiction. In this Memorandum we comment generally on SLOC interdiction in nuclear war, but our concern is mainly with conventional conflict because it would be the most demanding test of Soviet anti-SLOC capabilities.

In general, we confine our analyses to the early stages of a war or to a conventional conflict lasting less than six months. We believe that Soviet anti-SLOC efforts in this context would be focused primarily on NATO's military shipping engaged in the reinforcement and resupply of Europe—particularly NATO's Central Region. Disruption of that shipping would have the most impact on the outcome of the war. We place special emphasis, therefore, on the critical transatlantic shipping lanes between the United States and Europe. We also consider Soviet interdiction in other areas such as the Pacific and Indian Oceans, but we treat it in less detail.

Although we do not rule out the possibility of a protracted, conventional war of attrition of indefinite length, the Soviets consider such a war with NATO highly unlikely. The nature of Soviet interdiction in such a war could be similar to or different from that described in this study, depending on the circumstances.

SUMMARY

1. We believe that it is not currently the intention of Soviet planners to conduct a large-scale interdiction campaign against sea lines of communication (SLOC) in a major war with NATO, although we believe they intend some interdiction. Before the war began, or once it was under way, Soviet intentions could change with the evolving strategic situation, especially if the combat were protracted. But the Soviets first would have to bring about a substantial weakening of NATO's potential to protect its sea lines before they could expect much success in a large-scale, conventional interdiction campaign.

Soviet Intentions for SLOC Interdiction

- 2. Overall, the Soviets' military writings and exercises indicate that the primary wartime objectives of their general purpose naval forces—at least initially in a conflict—would be to defeat NATO's nuclear-capable naval strike forces and to protect Soviet strategic submarines. Most Soviet naval forces would be assigned to these tasks. SLOC interdiction would be a less urgent task. In the Soviet view, either Warsaw Pact forces would defeat the main groupings of NATO forces in Central Europe or war most likely would escalate to theater nuclear conflict before NATO's seaborne reinforcement and resupply of Europe became a critical factor.
- 3. Even though Soviet planners regard SLOC interdiction as a lower priority task, we believe that they would allocate some forces to it from the outset of hostilities. In particular, we believe that the Soviets plan to conduct some attacks on shipping—and probably some mining and attacks on European ports—primarily to influence local land campaigns, to disperse and tie down NATO naval forces, and to reduce the efficiency of NATO military shipping. Such actions in the Soviet view would complicate NATO's operations and facilitate performance of what the Soviets see as their more important tasks.
- 4. The Soviets could increase their emphasis on SLOC interdiction before or during a war with NATO in response to their perception of a changing strategic situation. Such a move would be difficult for them, however. A decision to draw down forces allocated to other missions

and to commit them to an anti-SLOC campaign almost certainly would be viewed by the Soviets as risky as long as NATO's naval forces threatened the USSR and Soviet strategic submarines.

5. Probably one of the most likely circumstances that would motivate the Soviets to widen their emphasis on SLOC interdiction would be the lengthening of a war into a protracted conventional conflict. Another circumstance might be a conflict that began after a prolonged period of mobilization during which NATO began the reinforcement and resupply of Europe by sea. In such a case the Soviets might see interdiction as an urgent task at the beginning of hostilities.

Execution of a Soviet Interdiction Campaign

6. There are various forces that the Soviets could bring to bear against sea lines of communication, depending on the situation. In general, attack submarines probably would be the main force for interdiction at sea, although strike aircraft also could play a role. The Soviets regard surface ships as less capable for anti-SLOC attacks, and we do not believe that they would attempt to use them on a large scale for such attacks in the open ocean, at least not in the initial phases of a war. Aircraft would be the primary force for attacking European ports in a conventional war. In a nuclear war, some ballistic missiles could be used for strikes on SLOC termini.

Conventional War

7. Systematic Action or Naval Operation. If a NATO-Warsaw Pact war developed roughly as envisaged by Soviet writers the Soviets would not initially mount a large-scale interdiction operation. They probably would, however, launch a smaller anti-SLOC campaign—what they term a "systematic action"—in the North Atlantic and possibly in the Pacific and Indian Oceans as well. We believe that such an offensive would be conducted principally by attack submarines. It probably would normally involve fewer than 10 submarines in the sea lanes, but the Soviets could increase or decrease the number of submarines on station at selected times. The

^{&#}x27;The Defense Intelligence Agency believes that Soviet planning for war with NATO probably includes the use of selected merchant and fishing ships to lay mines in the approaches to European SLOC termini—for example, southwest of the English Channel—especially at or before the beginning of hostilities. The majority believe, however, that the use of merchant and fishing ships for mining is at best conjectural. They further believe that such mining would contribute only marginally to the disruption of the reinforcement and resupply of Europe

campaign also could involve some mining by various means. Although the Soviets would consider such a campaign important, they would not regard it as critical to the outcome of the war.

- 8. While this interdiction campaign was in progress, the bulk of Soviet naval forces would be engaged in what the Soviets call "the initial naval operations"—large-scale simultaneous actions designed primarily to control pivotal maritime areas and to deny NATO's naval strike forces the use of other selected areas.² The initial naval operations would be focused mainly in the Norwegian, Baltic, Black, and Mediterranean Seas and in the northwestern Pacific. The Soviets evidently believe that these naval operations would be likely to span both conventional and nuclear conflict. They probably hope to achieve the goals of these operations within the expected duration of a ground campaign in Central Europe.
- 9. If the Soviets increased their emphasis on SLOC interdiction in a conventional war, for whatever reason, we believe that they would attempt to mount an anti-SLOC naval operation. Such a move would change the nature of an interdiction campaign begun as a systematic action. The Soviets would attempt to concentrate large forces in the sea lanes at certain times for decisive sea denial battles. They almost certainly would want to defer such an operation, however, until after they had accomplished their initial naval operations and had weakened NATO's capability to protect its sea lines.
- 10. Attacks on Ports. A Soviet bombing and mining campaign against European ports in a conventional war probably would be similar to the interdiction campaign at sea. Initially it would be a systematic action, but it could evolve into an operation, depending on the course of the war. At the outset of hostilities, most Soviet medium bombers and tactical aircraft would be committed to a massive bombing offensive to achieve air superiority and reduce NATO's nuclear capability in Central Europe—what the Soviets refer to as the "Air Operation"—and therefore they would be unavailable for early strikes on ports. Only some Naval Aviation bombers and a few attack submarines might be available for a campaign against ports early in a war.

Nuclear War

11. The Soviets clearly believe that the most effective way of interdicting sea lines of communication is to attack an enemy's ports

³ A naval operation in Soviet thinking is characterized by large forces that are concentrated for a specific objective. It typically would involve a major setpiece battle or series of battles.

and harbors with nuclear weapons. Such attacks require the fewest forces, offer the highest probability of success, and are hardest to defend against. If a NATO-Warsaw Pact war began as or escalated to nuclear conflict, the Soviets almost certainly would focus their anti-SLOC efforts primarily on SLOC termini, although they probably would also conduct nuclear attacks on shipping at sea. Attacks on ports could include strikes with chemical weapons.

12. During a limited nuclear war, Soviet nuclear strikes would be restricted to the theaters of military operations. If war escalated to intercontinental conflict, some US ports also probably would be attacked.

Soviet Capabilities in the North Atlantic in Conventional War

- 13. The Soviets possess a significant anti-SLOC potential. Their actual anti-SLOC capabilities in a conventional NATO-Warsaw Pact war, however, would vary with the scenario, and they would be limited by technical and operational constraints on Soviet forces.
- 14. We do not believe that a Soviet systematic action against North Atlantic sea lines would result in the sinking of many merchant ships because the Soviet investment in forces would be small and those forces probably would suffer heavy attrition against well-defended shipping. The degree to which such a campaign tied down NATO forces and reduced the efficiency of reinforcement and resupply shipping probably would depend on how NATO perceived and reacted to it.
- 15. If the USSR attempted a large-scale operation to sever transatlantic sea lines, its prospects for success would be slim unless NATO's capability to protect them were first substantially weakened. The Soviets could lose a major portion of their naval forces in an anti-SLOC operation in the face of strong NATO opposition. Although Soviet forces might be able to inflict heavy damage on a few NATO convoys, rapidly mounting attrition would quickly diminish their capabilities to inflict further damage.

Prerequisites for an Anti-SLOC Naval Operation

- 16. We believe that at a minimum the Soviets would have to accomplish the following tasks before they would have a likely chance of cutting North Atlantic sea lines of communication:
 - They would have to gain control of the Norwegian Sea without excessive losses. Such control would have to include the neutral-



- ization of NATO's antiair and antisubmarine (ASW) capability based in northern Norway.
- They would have to reduce significantly NATO's air and ASW defenses in the Greenland-Iceland-United Kingdom (G-I-UK) gap.
- They would have to degrade NATO's wide-area ASW surveil-lance capability in the North Atlantic by attacking or sabotaging SOSUS terminals and the SURTASS ships that are to be deployed in the next few years.

If the Soviets accomplished these tasks, they would be able to dictate the time and place for an interdiction campaign, and they probably could disrupt the reinforcement and resupply of Europe. Otherwise, they probably would have to fight an anti-SLOC campaign on NATO's terms, and our analyses indicate that their capabilities to do so would be marginal.

- 17. The first two of the above tasks would be objectives of the initial naval operations of the Northern Fleet. Detailed analyses of these operations are outside the scope of this study. We judge, however, that they would be difficult for the Soviets to conclude successfully and without heavy losses in a conventional war if NATO strongly contested them.
- 18. The Soviets might be able to disrupt a number of SOSUS arrays early in a war, particularly those terminating in Iceland, Norway, and the United Kingdom. It would be more difficult for them to sink SURTASS ships, however, especially if these ships were protected. Unless the Soviets significantly weakened both the SOSUS and SURTASS networks, NATO could still have a strong submarine detection capability in the North Atlantic.

Strengths and Limitations of Soviet Submarines

19. Diesel Submarines. Our analyses show that long-range diesel submarines—primarily those of the F- and T-classes—probably would be the most capable Soviet force for an anti-SLOC campaign against strong NATO defenses. Diesel submarines would be difficult to counter because of their quietness when operating on battery power. With the right tactics, these submarines would have a good chance of reaching the North Atlantic sea lines. They probably would be most vulnerable to ASW prosecution during attacks on convoys when they compromised their presence.

- 20. Although they can operate quietly, diesel submarines have limited mobility and they would have to travel long distances to reach North Atlantic sea lines from their Northern Fleet bases. It would take a diesel submarine more than two weeks, for example, to reach a patrol area at the entrance to the English Channel. Once there, it could spend only about three and a half weeks on station before it would have to be replenished. Because of these considerations, the Soviets would be unable to keep large numbers of diesel submarines continuously on patrol in the North Atlantic. To maintain six on patrol, for example, they would have to allocate some 20 units—more than half of the available F- and T-class submarines in the Northern Fleet—to SLOC interdiction.
- 21. The long distance to North Atlantic sea lanes would tend to limit the amount of damage the diesel submarine force could inflict on NATO shipping. Moreover, the anti-SLOC capabilities of the force would decrease as the war lengthened and diesel submarine losses mounted.
- 22. Nuclear Submarines. Soviet nuclear submarines are faster and more mobile than diesel submarines, but they lack the quietness of diesels. Most Soviet nuclear submarines are noisy relative to their Western counterparts, and they therefore would be at a constant disadvantage with respect to NATO submarines. Moreover, the noise radiated by Soviet nuclear submarines can be detected by NATO's wide-area surveillance systems, often at great ranges. Our analyses show that, if NATO's area ASW forces—supported by SOSUS and SURTASS—were not considerably weakened and performed as expected, Soviet nuclear submarines would suffer heavy attrition in an anti-SLOC campaign in the North Atlantic. Although the Soviets evidently are taking steps to reduce the noise of their nuclear submarines, programed improvements to NATO's ASW systems, if realized, will offset much of what we believe the Soviets will achieve in the foreseeable future.
- 23. Nuclear submarines could reach sea lines more quickly than diesel submarines because they could transit at higher speeds. Their use of high speeds, however, would heighten their radiated noise, thus increasing their vulnerability to NATO's area ASW forces.
- 24. Other Factors. There are various other factors that would affect Soviet submarine capabilities in an anti-SLOC campaign in the North Atlantic, including:
 - Submarine availability. The demands of the initial naval operations and the requirement to protect strategic submarines



would significantly limit the availability of Soviet attack submarines for SLOC interdiction, at least early in a war.

- Submarine replenishment. If Soviet submarines could replenish in the North Atlantic without having to return to Northern Fleet waters, their anti-SLOC capabilities would be improved. A few submarines might receive minimal support from facilities in Cuba or Africa or from deployed merchant or auxiliary ships. Such support would not be adequate for a major or sustained campaign, however.
- Acoustic environmental conditions. Poor conditions would favor the Soviets by reducing submarine vulnerability. Such conditions can change radically, however, and over a lengthy campaign they probably would even out.
- Ocean surveillance. Soviet submarines would need timely intelligence on NATO convoys or their attacks could be piecemeal. The Soviet ocean surveillance system—which is highly susceptible to countermeasures—would have to operate without material degradation.
- Cruise missile targeting. The availability of targeting data for submarines with long-range cruise missiles probably would be ephemeral at best in the North Atlantic. Thus the Soviets probably would have to rely on torpedo attack submarines and those with short-range cruise missiles for an anti-SLOC campaign.

Aircraft Capabilities

- 25. For conventional airstrikes against North Atlantic shipping, the Soviets probably would use Backfire bombers. Although the Soviets have modified some heavy bombers to carry conventional antiship missiles, it is problematic whether they would use these aircraft against sea lines of communication. Other Soviet bombers would have insufficient range to attack North Atlantic sea lines from Warsaw Pact airfields, except perhaps near some European SLOC termini.
- 26. Backfire Range Constraints. If the Backfire has the performance estimated by CIA, we judge that the range constraints of the aircraft would severely limit its capability against North Atlantic shipping. The capability of a Backfire performing according to DIA, Army, and Air Force estimates would be less constrained because of longer range

- 27. Vulnerability to NATO Air Defenses. Backfire anti-SLOC capabilities also would be restricted by the aircraft's vulnerability to NATO air defenses. If NATO maintained its maritime air defense capability in Iceland and the United Kingdom, Backfires would suffer heavy attrition if they attempted to fly through the G-I-UK gap. Even if the G-I-UK air defenses were breached, the Soviets still would have to expect heavy attrition in an anti-SLOC campaign if NATO deployed aircraft carriers to defend shipping. With such attrition, Backfires would sink relatively few merchant ships. With no threat from carriers and if Backfires could fly freely through the G-I-UK gap, the Soviets could inflict major damage on NATO shipping—if not disrupt the reinforcement and resupply of Europe—unless NATO took actions to cut its losses.
- 28. Other Factors. Backfire anti-SLOC capabilities also would be affected by other factors, including:
 - Backfire availability: The Backfire force is small—currently some 140 aircraft—and it probably would have many missions to perform in a NATO-Warsaw Pact war. We believe that the Soviets would tend to use Backfires conservatively for anti-SLOC attacks, except in extreme situations.
 - Raid size. Large, simultaneous Backfire raids would be more productive than small ones against well-defended shipping. The wave tactics that the Soviets practice, in which small groups of aircraft fly successively to their targets, could work against the Soviets. In any event, raid size in most situations would be limited by the availablility of tankers. Unless a new tanker is deployed for Backfire missions, most of the 33 tankers that support the intercontinental bomber force would have to be allocated to the anti-SLOC task.
 - Ocean surveillance. Backfire attacks would require timely and accurate information on the location and direction of movement of NATO convoys. Without such information, Backfire anti-SLOC capabilities would be marginal at best.
 - Payload, Although Backfires can carry one or two air-tosurface missiles, they probably would be limited to a single missile for attacks at great ranges.

Attacks on SLOC Termini in Conventional War

- 29. Massive and repetitive bombing and mining attacks, in our judgment, would be required to disrupt decisively or to sever sea lines at the European termini in a conventional war. The Soviets' capabilities to mount such an offensive would hinge primarily on their ability to control the air en route to and over the ports.
- 30. With little or no opposition, the Soviets probably could maintain heavy attacks that eventually would close ports or destroy many of the ships that attempted to unload in them. Without air superiority, they might be able to mount a few attacks on ports, but they could not conduct persistent attacks of sufficient size and with sufficient freedom to bring lasting results. Control of the air would not be easy for the Soviets to achieve. Ultimately, it probably would depend on the course of the war in Central Europe, although the outcome of the initial Soviet Air Operation would have a direct bearing on Soviet capabilities early in a war. There is no consensus within the Intelligence Community on the likelihood of success of the Air Operation. A CIA study has concluded that the Air Operation would not achieve air superiority, although in CIA's judgment it would do considerable damage to NATO's air defenses. Others believe that the degree to which the Air Operation would achieve air superiority and affect the Soviet capability to conduct air attacks on SLOC termini is highly scenario dependent and cannot be judged with confidence.3

Aggregate Effects of Systematic Actions

31. We believe that the Soviets could decisively disrupt or sever NATO's reinforcement and resupply of Europe in a conventional war only by large-scale air and naval operations and only after they had substantially weakened NATO's SLOC defenses. Nevertheless, we recognize that the flow of NATO's reinforcements and supplies could be impaired if the Soviets could maintain constant pressure on NATO shipping by a well-orchestrated campaign of systematic actions both in the North Atlantic and at the European termini. Presumably, these systematic actions would include regular submarine attacks in the open ocean, selected bombing and mining of ports, and perhaps some antiship airstrikes. We cannot judge with confidence, however, the extent to which NATO's reinforcement and resupply effort would be impaired by such actions.

[?] The holders of this view are the Defense Intelligence Agency and the intelligence components of the Navy and Air Force



32. Most agencies believe that the aggregate effects of the actions described above would have to compound over time for the impairment to become significant. One view is, however, that even temporary interruptions in the flow of critical supplies and reinforcements in NATO's sea lines of communication probably would constitute a serious impairment in the flow to the European Central Front. According to this view, such a serious impairment could be caused by a relatively small-scale bombing, mining, and sabotage campaign aimed at critical nodes such as locks, power supplies, bridges, classification yards, pipelines, and channels. The majority believe, however, that limited small-scale attacks probably would not constitute a serious impairment because the facilities at the termini are so extensive that the damage inflicted would not seriously inhibit the use of these ports. Moreover, the number of termini ensures that sufficient capacity would be available even in the event of some disruption.

Interdiction in the Pacific and Indian Oceans

- 33. In a NATO-Warsaw Pact war the Soviets could mount an initial anti-SLOC systematic action against Pacific sea lines as part of their sea denial mission, but we believe that the anti-SLOC task would be of lower priority than in the Atlantic. The focus of any systematic action probably would be military shipping, although the Soviets could conduct random attacks on economic shipping in an attempt to force the United States to allocate additional scarce resources to shipping defense. Depending on the course of the war, the Soviets could also mount large-scale operations against certain sea lines at specific times. In general, Soviet capabilities for SLOC interdiction in the Pacific would be less than in the Atlantic theater because the Soviets have fewer forces in the Pacific Fleet.
- 34. An anti-SLOC campaign in the Indian Ocean probably would take the form of a systematic action conducted by the Soviet forces in place at the start of the war. A likely target for the campaign would be the crucial tanker traffic to Western Europe and the United States. A small Soviet force of four to five submarines and several surface combatant ships probably could disrupt undefended tanker traffic by direct attacks and mining of the Strait of Hormuz. The Soviets could not sustain such a campaign against significant opposition or if they were unable to resupply their Indian Ocean forces.

^{*} The holder of this view is the Defense Intelligence Agency

Outlook

- 35. We do not expect the Soviet concept of SLOC interdiction in a NATO-Warsaw Pact war to change radically over the next few years. Over the next decade or longer, the Soviets could gradually modify their view of and approach to interdiction in response to their changing perceptions of the course of a NATO-Warsaw Pact war or to changes in NATO's force structure or strategy for the reinforcement and resupply of Europe. The Soviets' capabilities to interdict sea lines of communication will improve through the 1980s as new submarines, aircraft, and weapon systems enter their inventory. Such improvements could be offset if NATO continues to upgrade its naval strike forces and its ability to defend its sea lines.
- 36. Probably the most likely factor that would affect the status of interdiction in Soviet planning would be an evolving Soviet perception that a conventional period of war with NATO would be more protracted than the Soviets currently envision.
- 38. The Soviet concept of SLOC interdiction also could change in response to changes in NATO's force structure. The retirement of US aircraft carriers without replacement, for example, or a sizable reduction of NATO's general purpose naval forces would erode a NATO deterrent to a Soviet anti-SLOC campaign. The Soviets probably would see fewer impediments to early SLOC interdiction and they probably would deploy additional forces for distant sea denial operations against both merchant ships and naval forces.
- 39. A widespread deployment on NATO surface ships and submarines of long-range, nuclear-capable cruise missiles for land attack

would tend to restrict the Soviet allocation of forces for SLOC interdiction. Such deployment would greatly complicate the overriding Soviet objective of quickly destroying NATO's nuclear-capable strike forces in the initial naval operations. A large-scale effort against cruise-missile-equipped submarines and surface ships could bankrupt Soviet capabilities for SLOC interdiction, if not some other tasks as well.

40. If in the coming years the Soviets establish major naval and air facilities in Africa, South or Southeast Asia, the Caribbean, or other distant areas, their capabilities for SLOC interdiction—as well as other tasks—would be significantly improved. At present there is little likelihood that they will develop extensive overseas facilities in the near future to support large forces. The overseas facilities to which the Soviets currently have access would not be adequate for supporting a sustained interdiction campaign without further development and the pre-positioning of substantial combat stores, fuel, and munitions.



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